

CLAIMS

What is claimed is:

1. A combined flat bed scanner/printer machine comprising:
a moving body that is movable;
a scan unit, moved by the moving body to scan a first paper; and
a print unit, moved by the moving body to print on a second paper.
2. The machine according to claim 1, wherein the print unit is an ink jet head.
3. The machine according to claim 1, wherein scanning and printing occur simultaneously.
4. The machine according to claim 1, wherein the scan unit and the print unit are mounted on the moving body.
5. The machine according to claim 1, further comprising:
a transfer unit, to move the moving body, the transfer unit having
a belt, attached to the moving body,
a motor, to move the belt, and
a guide rod to guide the moving body.
6. The machine according to claim 5, further comprising:
a plurality of pulleys to move the moving body along the guide rod, wherein
one of the plurality of pulleys is located at an end of the transfer unit and is in communication with the belt, and
one of the plurality of pulleys is located at the motor and is in communication with the belt.
7. The machine according to claim 1, further comprising:
a connecting unit,
wherein the print unit and the scan unit are selectively connected to each other by the connecting unit.
8. The machine according to claim 1, further comprising:

a connecting unit,
wherein
the print unit is mounted on the moving body, and
the scan unit is selectively mounted on the moving body by the connecting unit to scan the first paper.

9. The machine according to claim 8, wherein:
the scan unit is not moved by the moving body during printing.

10. The machine according to claim 8, further comprising:
a scan recess, located at an end of the machine and shaped to park the scan unit when the scan unit is not mounted on the moving body.

11. The machine according to claim 8, wherein the connecting unit comprises:
an electromagnet connected to one of the print unit and the scan unit; and
an adsorption plate connected to the remaining one of the print unit and the scan unit to correspond to the electromagnet, wherein the adsorption plate adheres to the electromagnet when the electromagnet is magnetized.

12. The machine according to claim 8, further comprising:
a sensor determining whether the scan unit is mounted on the moving body,
wherein the moving body starts moving to read the first paper for scanning after it is determined that the scan unit is mounted on the moving body, and the moving body starts moving to print on the second paper after the sensor determines that the scan unit is not mounted on the moving body.

13. The machine according to claim 12, wherein:
the sensor senses an electromagnetic interference to determine whether the scan unit is mounted on the moving body.

14. The machine according to claim 12, wherein:
the sensor uses a contact between the scan unit and the print unit to determine whether the scan unit is mounted on the moving body.

15. The machine according to claim 8, wherein the connecting unit comprises:

a toggle latch connected to one of the print unit and the scan unit; and
a locking projection connected to the remaining one of the print unit and the scan unit,
wherein the toggle latch is opened when the print unit and the scan unit are not connected, and
the toggle latch is closed around the locking projection when the print unit and the scan unit are
connected.

16. The machine according to claim 15, wherein the toggle latch comprises:
an actuating part; and
arms,
wherein when the actuating part is pressed, the arms lock, and when the actuating part
is re-pressed, the arms open.

17. The machine according to claim 16, wherein:
when the locking projection presses the actuating part, the arms lock around the locking
projection.

18. The machine according to claim 8, wherein the connecting unit comprises:
a latching projection protruding from one of the moving body and the scan unit;
a pivoting member pivotably disposed on the remaining one of the moving body and the
scan unit, and having a hook to selectively engage the latching projection when the pivoting
member pivots; and
a moving unit disposed on a conveyance path of the moving body and pivoting the
pivoting member to disengage the hook from the latching projection to print on the second paper.

19. The machine according to claim 18, further comprising:
a frame to support the scan unit; and
a guide, to guide movement of the frame.

20. The machine according to claim 19, wherein:
the pivoting member is pivotably disposed on the frame; and
the pivoting member has:
a first part positioned adjacent to the moving body, and having the hook
positioned on an end thereof;
a second part disposed between the moving body and the moving unit; and

a corner pivotably disposed on the scan unit , and connecting the first and the second parts with a predetermined angle therebetween.

21. The machine according to claim 20, wherein the frame comprises:
a protrusion that contacts the pivoting member to confine the movement of the pivoting member to a predetermined pivoting range.

22. The machine according to claim 20, wherein:

when the hook and the latching projection are engaged and the moving body is moved in a first direction, the scan unit is moved together with the moving body as a single unit; and

when the hook and the latching projection are not engaged and the moving body is moved in a second direction opposite to the first direction, the second part of the pivoting member contacts a side of the moving body so that the pivoting member pivots, the hook engages the latching body, and the scanning unit is moved together with the moving body as a single unit.

23. The machine according to claim 20, wherein the moving unit comprises:
a switch body; and
a moving rod protruding from the switch body,
wherein when the moving body is moved to an end of the conveyance path, the moving rod is selectively moved between a first position, in which the moving rod supports the pivoting member to engage the hook with the latching projection, and a second position, in which the moving rod pivots the pivoting member to disengage the hook from the latching projection.

24. The machine according to claim 18, wherein the moving unit comprises:
a motor switch using a solenoid.

25. The machine according to claim 18, further comprising:
a sensor determining whether the scan unit is mounted on the moving body,

wherein the moving body starts moving to read the first paper for scanning after it is determined that the scan unit is mounted on the moving body, and the moving body starts moving to print on the second paper after the sensor determines that the scan unit is not mounted on the moving body.

26. The machine according to claim 25, wherein:
the sensor senses a position of the hook by light detection.

27. The machine according to claim 26, wherein:
the sensor is disposed adjacent to the latching projection.

28. The machine according to claim 27, wherein:
when the hook is not engaged with the locking projection, the sensor senses a light; and
when the hook engages the locking projection, the hook interferes with the light, and the sensor detects the interference with the light.

29. The machine according to claim 25, wherein:
one of
when the hook and the latching projection are supposed to be engaged and the sensor determines an inaccurate engagement, and
when the hook and the latching projection are supposed to be disengaged and the sensor determines an inaccurate disengagement,
the moving unit is moved to the second position.

30. The machine according to claim 25, wherein:
one of
when the hook and the latching projection are supposed to be engaged and the sensor determines an inaccurate engagement, and
when the hook and the latching projection are supposed to be disengaged and the sensor determines an inaccurate disengagement,
an external display device displays a malfunction.

31. The machine according to claim 18, wherein:

after the print unit prints on the second paper, the scan unit is mounted on the moving body.

32. The machine according to claim 1, wherein the scan unit comprises:
a line scanner having a plurality of image sensors.

33. The machine according to claim 32, wherein the plurality of image sensors
comprise:
charge coupled devices.

34. The machine according to claim 32, wherein the plurality of image sensors
comprise:
contact image sensors.

35. A combined flat bed scanner/printer machine comprising:
a scan unit, to scan a first paper; and
a print unit, integrally formed with the scan unit, to print on a second paper.

36. A combined flat bed scanner/printer machine comprising:
a moving body that is movable:
a scan unit, to scan a first paper; and
a print unit, to print on a second paper,
wherein one of the scan unit and the print unit is connected to the moving body, and the
remaining one of the scan unit and the print unit is selectively connected to the moving body.

37. A combined flat bed scanner/printer machine comprising:
a print unit, to print on a second paper; and
a scan unit, selectively connected to the print unit, to scan a first paper, and reduce a
load on the print unit during printing.